

# AMSynths

## **AM8075SE Athena Filter User Manual 24dB/Octave Low Pass Filter & 6db/Octave High Pass Filter**

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# AM8075SE Athena Filter

## 1 Welcome

Thank you for purchasing an AMSynths product.

The AM8075SE analog filter module has been designed and hand built in the UK to exacting quality standards. The module uses high quality electronic components and particular attention has been paid to the quality of the audio signal path, stability of the control circuits and the long term life of the product.

This user manual explains the basic functions of the module, as well the historic background to its development, how to install the module and the warranty and support.

AMSynths modules are produced in low volumes, with each module having a unique holographic serial number and a certificate of ownership. You own a rare and beautiful analog synthesizer module that will provide many years of amazing sounds and musical inspiration.

Rob Keeble  
Owner & Designer  
AMSynths  
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# AM8075SE Athena Filter

## 2 Front Panel

### **AUDIO INPUTS:**

InA, InB

### **CONTROL INPUTS:**

CV1, CV2, CV3

### **AUDIO OUTPUTS:**

Out

### **CONTROL POTS:**

Signal A (white)

Signal B (white)

Signal C (white)

LP Frequency (blue)

LP Resonance (red)

HP Frequency (blue)

CV1 (grey)

CV2 (grey)

The serial number is on a small silver holographic sticker on the inside of the front panel.

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## 3 Module Description

The AM8075SE is a clone of the ARP 4075 4-pole 24dB low pass filter in the ARP Odyssey Mark 3, Omni, Quadra and Solus, and very similar to the ARP 4072 filter in later models of the ARP 2600. The module also has a single pole High Pass filter connected in series after the low pass filter.

This Special Edition (SE) uses high quality internal components such as matched transistor arrays, low distortion and low offset op amps and precision Polypropylene capacitors, for a pristine sound quality. The external design replicates the "look and feel" of the ARP Odyssey Mk1 with slide potentiometers and coloured caps.

At the heart of this module is the LM3900 Norton Amplifier chip which delivers the distinctive "smooth" 4-pole low pass filter, with a clean low distortion output that will oscillate at higher resonance settings. The filter response at high resonance remains faithful to the original with a slight loss of bass at higher resonance.

The high pass filter in the original ARP Odyssey is rather a nasty affair based on a CA3080 OTA chip, so I have replaced it with an improved design based on the higher quality BA6110 OTA chip.

Athena is the Greek Goddess of inspiration and skill, and we think this skillfully engineered filter will inspired your music! The sound and look of the ARP Odyssey synthesizer, and much more.

# AM8075SE Athena Filter

## Connections & Controls

The two uppermost jack sockets INA and INB are for connecting audio signals into the input side of the filter, these signals are mixed together. The level of each audio signal can be varied from nil to maximum using the front panel slide potentiometers SignalA and SignalB.

The middle jack sockets CV1, CV2 and CV3 are for connecting modulation control voltages into the filter. These signals vary the cut off frequency of the filter, with the front panel slide potentiometers adjusting the amount of modulation, except for CV3 which is directly connected to the VCF.

The lowest jack socket marked Out is the audio signal output of the filter and it is typically connected to a VCA.

The VCF Cutoff slide potentiometer varies the cut off frequency of the low pass filter. At the minimum setting the filter will cut off all frequencies with no audio output and at the maximum setting the filter will pass all frequencies.

The VCF Resonance slide potentiometer adjusts the resonant peak of the filter from a minimum setting of no resonance, through subtle resonance enhancement to a maximum setting when the filter will break into self oscillation.

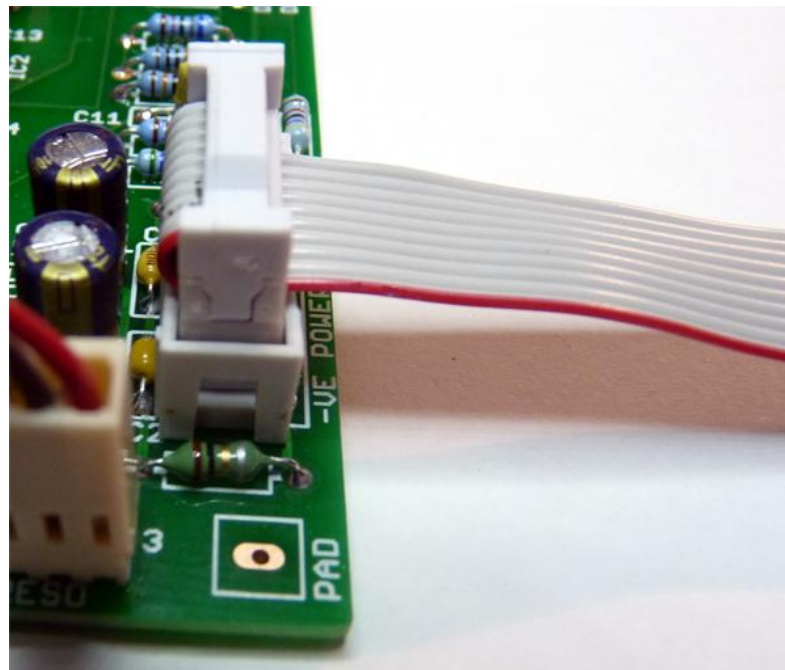
The HPF Cutoff slide potentiometer varies the cutoff frequency of the high pass filter.

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## 4 Configuration

The AM8075SE module occupies 16HP of EuroRack space and is fully compatible with various Euro Rack cases, especially Doepfer. The height of the panel is 128.5 mm and there are four mounting holes at each corner of the module. Four 3mm diameter mounting screws are included to enable you to securely mount the module into your rack.

The module should be connected to the 12V Doepfer style power bus within your case using the included AMSynths multi-way power cable. Ensure the power is OFF before connecting the module and BE VERY CAREFUL to ensure that the power connector to the bus is connected with the red stripe of the cable lined up with -12V (negative 12V). This is standard Euro Rack power connection but be VERY CAREFUL to get this right! Damaged modules will not be replaced under warranty when the power has been misconnected. The power socket on the AMSynths module is keyed so that the cable can only be inserted the correct way.



# AM8075SE Athena Filter

## 5 Warranty & Support

Repairs resulting from a defect of the module or its construction process are covered by a one year warranty, with the customer paying transit costs to AMSynths in the UK.

Damage to the module resulting from incorrect power supply voltages, backwards power cable connection, abusive usage, fluid encroachment or out-of specification voltage input are not covered by the warranty and normal service rates apply.

AMSynths implies and accepts no responsibility for undesirable harm to a person or apparatus caused through operation of this device.

If you have questions regarding the use of this module or you need technical support please contact AMSynths via email at [sales@amsynths.co.uk](mailto:sales@amsynths.co.uk).



# AM8075SE Athena Filter

## 6 Specifications

Power Supply:

+12V, GND and -12V standard Doepfer 10 pin connector  
RED stripe on power cable is -12V (NEGATIVE 12V)

Current consumption:

TBD

Dimensions:

128.5mm (Height) x 70.8 mm (Width)

Euro Rack Size:

16HP/TE

Panel:

2mm machined aluminum with colour photographic print.

Frequency

20 Hz to 20 kHz

Resonance

0 to self oscillation

Output Impedance:

1k ohm

Input Impedance:

100k ohm